*A Brush Chipper in Action — Doing a Fast Clean-Up Job After an East Coast Hurricane*

**Plant Propagators Society, Western Chapter, Pacific Grove, Calif., Oct. 25-27**

Hurricane Donna — *L. Faulkingham & H. Felton & G. Wignot*

Soil Management — *W. A. Mitcheltree*

September-October, 1961 *The Journal of American Arboriculture* Vol. 21, No. 6

# DIVERSIFICATION . . .

## the formula for FEWER STREET TREE TROUBLES

The above headline makes sense, especially when you consider the aesthetic loss of hundreds of thousands of American elms in this country—and the almost prohibitive expense involved. Our streets were overplanted with American elms and in most instances the tree simply did not fit the space. If the elm had represented 15% (instead of 85%) of all species planted in a city, Dutch Elm disease would never have gained such prominence.

Let's face facts: a majority of city planters were in a rut before DED hit. They either thought that the elm was the only tree for streets, or they couldn't find a variety of good trees grown specifically for street use. DED forced arborists to look for other trees—and our firm came into existence to make the search easier.

We have a one word formula that will prevent a repeat of this overplanting mistake: **Diversification, or, don't put all your eggs in one basket!**

## *Three Tailored® Trees*

## To Brighten Your Planting Program . . .

**Scanlon Globe Cherry**
**(Prunus avium Scanlon)**
Photo © Edw. H. Scanlon, 1961

**Crimean Linden**
**(Tilia euchlora)**

**Scanlon Maple (P.P. 1722)**
**(Acer rubrum Scanlon)**

No one tree can do every job—that's why we grow 175 Tailored® Trees. We have trees of all sizes and shapes; trees with flowers, berries, unusual bark and distinctive foliage. Remember, your streets are the show windows of your city. Don't plant blobs of green—complement the surroundings by choosing trees with shape and color.

Make your selections from the catalog of the only firm in the country specializing in street trees. Our Fall 1961-Spring 1962 catalog is ready now. It is the most extensive, exclusive list of trees in America. If you are not on our mailing list, you should be. Write today.

International Headquarters for the world's most discriminating purchasers of shade, ornamental and street trees.

TAILORED TREES "To Fit The Space"

**Edward H. Scanlon & Associates**

*"Growers of Tailored® Trees"*

**7621 Lewis Road** **Phone 235-3314**

**Olmsted Falls 38, Ohio**

TAILORED TREES "To Fit The Space"

# ALONG THE WAY With .... EDW. SCANLON

■ For a NUMBER OF YEARS I have been TRYING TO LOCATE a SPECIMEN SIZE FLOWERING ASH (Fraxinus ornus). So far there has been NO RESPONSE.

■ Some people HAVE QUESTIONED my classification of F. ORNUS as a SMALL CONVENTIONAL (up to 25') tree. I would like to have the LOCATION OF ANY SPECIMENS that would indicate that it WILL EXCEED this size in a "STREET TREE LIFETIME"—which I would place at 40 TO 50 YEARS.

■ The ONLY MATURE or WELL GROWN SPECIMENS I have ever seen of FRAX. ORNUS were in the ROYAL BOTANICAL GARDENS AT KEW. Two of these trees were 50 FEET HIGH, AND WIDE, BUT, were 90 TO 100 YEARS OLD, and anyone with a practical OUNCE OF SENSE knows that FEW STREET TREES in this expanding country are GOING TO BE AROUND for that period of time. The others were trees 40 TO 50 YEARS OF AGE and were about 27 OR 28' TALL—they were growing under garden conditions — NOT STREETSIDE — were growing in a climate much more equable than most areas in NORTHEASTERN, CENTRAL AND NORTHCENTRAL U. S. These are factors that only the EXPERIENCED IN STREET TREE MANAGEMENT take into consideration.

■ CONTRARY to what SOME WRITERS report, TILIA CORDATA will NOT GROW TO 90 FEET on A STREET in the United States (of America that is, to be technical) — to COMPOUND A FELONY. NURSERIES CATALOG IT as 45', which adds FURTHER TO THE CONFUSION. If anyone knows of a 90 FOOT OR EVEN A 45' LITTLELEAF LINDEN on a street in this country (the U. S. of A.) we would CERTAINLY LIKE to know of it. I DON'T SAY I have seen all of the L. L. L.'s on the STREETS OF AMERICA OR EUROPE. Even by the GREATEST STRETCH since Hal Chase, that WOULD BE IMPOSSIBLE, but I have seen A GREAT NUMBER, probably AS MANY AS ANY OTHER OBSERVER in the U. S. of A. and I HAVE YET TO SEE a 45' L. L. L. ON A STREET. Wake up boys and write!

■ GORDON BROWN figured 50 YEARS in the SKINNING GAME was about enough and HUNG UP HIS BOWLINE last year. GORDON started his career with the DAVEY CO., in 1910 and is NOW ENJOYING his retirement in LITTLE FALLS, N. Y. The best of luck GORDIE.

■ THIS QUOTE I LIKE. It so VIVIDLY DEPICTS what our COUNTRY IS BECOMING. The quote, which is the PRIZE OF THE LAST 75 years is "OUR NATIONAL FLOWER IS THE CONCRETE CLOVERLEAF" — credit for this truism goes to LEWIS MUMFORD, noted city planner — "CONCRETE CLOVERLEAF" ha, ha, that's good.

■ In case you are LOOKING BACK THRU THE ADS in TREES (WHICH IS A DICKENS OF A GOOD IDEA) and want to buy some of BARNEY BARTLETTS POLE PRUNERS, we MADE A SLIGHT BULL on page 12, last issue, in BARNEY'S AD. The SQUARE END MOUNT TREE TRIMMER should have been identified as "1 — WSQ" not as 1—W50.

■ About the middle of August we had an INTERESTING VISITOR from NIMES, FRANCE. AIME LAMBERLIN is a nurseryman and was making his THIRD TRIP TO THE U. S. A. to study principally fruit tree production and varieties. Hope WE GET A CHANCE TO VISIT you soon there in the SOUTH OF FRANCE AIME—it must be BEAUTIFUL COUNTRY.

■ ON PAGE 7 of the last issue we inadvertently omitted a CREDIT LINE under the picture of SHOE-STRING FUNGUS—it should have been credited to DR. P. P. PIRONE—TREE MAINTENANCE, OXFORD UNIV. PRESS.

■ In the event you DIDN'T KNOW IT, our old sparring partner BIFF STAPLES has been elected to the BOARD OF DIRECTORS of the MEN'S GARDEN CLUBS OF AMERICA. They picked a RED HOT DOER. Good going BIFF.

■ ORVILLE SPICER has RETIRED AFTER 46 YEARS of service with the BARTLETT TREE EXPERT CO. Elected to succeed ORVILLE AS PRESIDENT is ROBERT A. BARTLETT. ROB is the son of the founder and for the PAST 11 YEARS has been vice-president. We WISH THEM BOTH SUCCESS in their new undertakings.

■ After observing THREE OR FOUR STREETS of CHINESE CORK trees (Phellodendron amurense) that I PLANTED ON CLEVELAND STREETS —and having studied on NUMEROUS OCCASIONS the 50 YEAR OLD trees on Rochester streets, my conclusion is that it is AN UNDEPENDABLE STREET TREE.

■ These STREETS OF CORKS are TOO UNEVEN and IRREGULAR and their HABIT OF GROWTH makes a gaunt NOT PLEASANT looking tree. EVEN A SELECTED FORM, which would have to be BUDDED ON THE SPECIES, and it is evidently the CHANGE OF SOIL CONDITIONS in a treelawn that EFFECT THE ERROTIC GROWING BEHAVIOR, even then I doubt seriously that this would MAKE A DIFFERENCE. I don't think it would be WORTH A GAMBLE. Anyway PHELLODENDRON LAVALLEI is a much handsomer tree and would be WORTH A TRY—and is a BETTER GROWER.

■ Experienced a VERY PLEASANT surprise and had a LONG INTERESTING chat with DAVID W. SHOOBRIDGE, DIRECTOR OF PARKS AND GARDENS, CANBERRA, AUSTRALIA, at the Park Execs meeting in Rochester. MR. SHOOBRIDGE is on a three months holiday in the U. S. to look things over here. SORRY I DIDN'T HAVE the time to go to CANBERRA last fall when I WAS IN AUSTRALIA. I'm sure it would have BEEN STIMULATING to meet this FINE GENTLEMAN and have a look see at this city WHICH EVERYONE told me was one of the MOST BEAUTIFUL OF AUSTRALIAN CITIES.

■ The MANY WONDERFUL OLD EUROPEAN BEECHES in Rochester—of numerous varieties — MAKES ONE WONDER what happened in the BRAIN DEPARTMENT of the tree planters in the PAST 20 YEARS. Instead of creating beauty such as these MAJESTIC TREES DO, tree planters are still going strong on SILVER MAPLES, which are sold BY EVEN THE SELF-ANNOINTED "LEADING" NURSERIES; then we have TRASHY HONEY LOCUST, SIBERIAN ELMS, etc., weed trees all—but HOW MANY BEECHES do you see being planted. YOU TAKE THE ELM, I'LL TAKE THE BEECH.

■ WHAT IS MEANT when it is said that the CONGRESS OF THE U. S. are the REPRESENTATIVES OF THE PEOPLE. I doubt if there are even TEN SCREWBALLS in the U. S. WHO APPROVE the WASTEFUL SPENDING PROGRAMS of this new CONFUSED ADMINISTRATION. It is time the people let their SO-CALLED REPRESENTATIVES know they want ECONOMY, NOT WILLFUL WASTE in their govcrnment.

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**TREES MAGAZINE**
**7621 Lewis Road,**
**Olmsted Falls 38, Ohio**

*The Editors of TREES invite discussions, comments and all type of literary materials pertaining to trees and tree preservation from any person engaged either in the scientific advancement or commercial development of the field.*

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TREES Magazine is a bi-monthly Journal published at Olmsted Falls, Ohio, by Edward H. Scanlon. and is devoted to the advancement of knowledge in the aesthetic and functional uses of exotic and native ornamental trees; to the advancement of research in pathological, entomological and physical disorders of ornamental trees; and to the education of the public to the advantages and need of using trees properly, both aesthetically and functionally. TREES Magazine is dedicated to the furtherance of the technical and business administration of Trees (Street and Ornamental); and Parks (Municipal and National) in the U. S. Scanlon Publishing Co., 7621 Lewis Road, Olmsted Falls, Ohio. Subscription by mail $3.00; Canada and Mexico $3.00—other countries $3.70. Advertising rates upon inquiry. Closing date for advertising copy—10th of month preceding date of issue. Unsolicited manuscripts must be accompanied by return postage.

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**Edward H. Scanlon, Editor** **June S. Faulds, Ass't. Editor**
7621 Lewis Rd., Olmsted Falls 38, Ohio Telephone 235-3314

"No place is complete without trees. A home without trees is charmless; a road without trees is shadeless; a park without trees is purposeless; A COUNTRY WITHOUT TREES IS HOPELESS."

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# Out On A Limb

## JAKE (The Magnificent One) GERLING RETIRES

Down through the years, twenty-two of them to be exact, one of our most cherished and respected friends has been and always shall be Jake Gerling. Jake has retired after a 28-year tenure of devoted service to the Rochester (N. Y.) Parks Department. It wasn't necessarily the parks department that commanded his devotion, it was a man. That man was the late Barney Slavin, one of the few giants in American horticulture. Jake practically grew up under Barney's guidance and came to idolize him. The inspiration and dedication of Barney Slavin's knowledge and love of plants rubbed off real good on Jake and he too became a crusader for the real aristocrats of the plant world.

With his retirement, the last of the old guard of builders and plant developers disappears from the Rochester scene.

For over 20 years Jake has been an ardent proponent of the use of common sense small stature, upright and globe type trees in the restricted space now available for tree development along street sides.

Our treasured friendship with the little giant—who was featured in Ripleys "Believe It Or Not" column in 1943, for his ability to tear a deck of cards in halves, quarters and eights —began in 1940 when he and Malcolm Milne, then City Forester, collaborated on a series of articles on ascending type trees for TREES Magazine. The series will no doubt be remembered by many of the older subscribers. It stirred up a lot of constructive thinking about street trees and is as timely today as it was 20 years ago.

As another nut on photography, but nutty like a fox, the Magnificent One has accumulated over the years a vast collection of color slides, as well as black and white photographs and is in considerable demand around the country for his constructive lectures on advanced tree use. Now with time to do as he pleases and get back to the trees and things horticultural which he loves, and which for some devious reason he was abstracted in the last five years of his tenure, he has big plans afoot. We hope one of them is a few stories on trees for this mag.

It is hoped that one of the real constructive works, up to date, will result from a project now under way by the Shade Tree Selection Committee (the word "shade" should be dropped) of the International Shade Tree Conference of which Jake is Chairman and we act as Co-chairman. This project is the compilation of lists of desirable species and varieties for all parts of the U. S. It can be a great thing. It is not as simple as sitting down, as some are doing, drawing up a list of available trees and turning it in. With Jake devoting considerable 'police' time to this project it has every chance in the world to succeed.

We are sorry to learn of Jake's retirement because of the void it leaves in the carburetion department for the stimulation of continued good maintenance and renewal of the incomparable tree collection in Rochester. But, we know he will be happier doing the thing he likes best — monkeying around with trees.

# NSTC Goes International

The National Shade Tree Conference will hereafter be known by a new name: the International Shade Tree Conference.

The name change, which was adopted during the annual business session of the 37th conference in Minneapolis, Minn., was decided on because the membership has become international in scope.

The six-day convention was attended by 620 registered members and guests. This total is about 80 below the attendance in Boston last year and about 200 below the attendance in Detroit in 1959.

Officers elected during the business session are: Hackett C. Wilson, Wilson Tree Co., Shelby, N. C., president; Maunsell Van Rensselaer, Director, Saratoga Horticultural Foundation, Saratoga, Calif., vice president; L. C. Chadwick, Ohio State University, Columbus, Ohio, secretary-treasurer; and Paul E. Tilford, Wooster, Ohio, editor.

Elected to the executive committee for three-year terms as representatives of regions 2, 4 and 6, respectively, were Carl J. Schiff, Department of Parks, New York, N. Y.; John Michalko, Division of Shade Trees, Cleveland, Ohio; and C. Elmer Lee, Southern California Edison Co., Ltd., Los Angeles, Calif. Elected to the membership committee for three-year terms in regions 2, 5 and 7, respectively, were Herbert L. Bowman, Cleona, Pa.; Leonard Hammerstone, Crystal Lake, Ill., and C. G. Dobbin, Toronto, Ont., Canada.

Two showings of the premiere film "Trees and Their Care," produced by John Ott Pictures, Inc., Lake Bluff, Ill., attracted standing room crowds. The first showing was for members only and the second showing was open to the public. The 16-mm film, in color and with sound tract, depicts the various phases of shade tree maintenance. Distribution is being handled by Dr. L. C. Chadwick, Department of Horticulture, Ohio State University, Columbus 10, Ohio, and F. Earle Martin, Cedarvale Tree Experts Ltd., 1480 St. Clair Ave. West, Toronto, Ont., Canada.

The conference next year will be held at the Jack Tar Hotel, San Francisco, Calif., August 5-10. Future host cities for the annual convention of the International Shade Tree Conference will be: Toronto, Canada in 1963; Houston, Texas in 1964; Buffalo, New York in 1965; and Cleveland, Ohio in 1966.

## George T. Lewis To Head NAA

Mr. George T. Lewis, Lewis Tree Surgeons Co., Media, Pa., was elected president of the National Arborist Association at the group's annual business meeting in Minneapolis, Minn. Approximately 130 members and guests were present at the election.

F. L. Dinsmore, Dinsmore Tree Service, St. Louis, Mo., was elected first vice president; John Z. Duling, Duling Tree Expert Co., Muncie, Ind., second vice president; Winston E. Parker, Certified Tree Expert, Moorestown, N. J., secretary; and Edwin E. Irish, Charles F. Irish Co., Inc., Detroit, Mich., treasurer.

John C. Phillips, Sohner Tree Service, Inc., San Anselmo, Calif., was elected to the board of directors. Holdover directors are Harry A. Morrison, arborist, Wilmette, Ill., and Kenneth P. Soergel, Soergel Tree Service, Gibsonia, Pa.

The next NAA meeting will be held in Washington, D. C., January 28-31, 1962.

### Dr. R. T. Nelson Joins Pennsalt Chemicals

Dr. Russell T. Nelson has been appointed assistant supervisor of the Agricultural Chemicals Section of Pennsalt Chemicals Corp., according to J. Drake Watson, general manager of Pennsalt's Agrictultural Chemicals Division.

Dr. Nelson received his doctorate from the University of Minnesota, College of Agriculture, where he majored in agronomy and plant genetics. In 1952 he was elected 'Fellow' of the American Association for the Advancement of Science. During the past 15 years he has been engaged in development work for the sugar beet industry.

You Won't Want To Miss
The Next Issue of
TREES Magazine
We'll be celebrating our
25th Anniversary

## ODDITREES—The Ivy Tree

*This very unusual "Ivy Tree" was found growing in Beacon Hill Park, Victoria, B. C. The host was stubbed 15 feet from the ground and the persistent ivy took over and formed a symmetrical crown. The result is an attractive, small, evergreen tree-like plant.* **Photo by Maunsell Van Rensselaer, Director, Saratoga Horticultural Foundation, Saratoga, Calif.**

## An Arborist and 2 Public Utility Men Write About:

# Experiences With

(EDITOR'S NOTE: *As we prepare this edition for publication, newspapers and television stations just finished covering the story of Hurricane Carla and her infamous invasion of the Southwest, especially Louisiana and Texas and are now guessing about Hurricane Esther's path. It was just a year ago, almost to the date, that Hurricane Donna was on a rampage through New England. Utilities and tree companies in the Boston area learned a few things from Hurricane Carol in 1954, and while the experience was beneficial in their second restoration program, not much could be done to prevent extensive and expensive damage . . . most of which was attributed to trees. Mr. Faulkingham notes in his article that over 90% of the damage to overhead lines was caused by falling trees and torn off limbs hurled against wires. We think you'll find the three following articles extremely interesting, educational and exciting . . . all three were originally presented at the Shade Tree, Arborists and Public Utilities Conference at the University of Massachusetts, March 27-31, 1961.)*

## Gusts Hit 140 MPH; Trees Cause 90% Of Line Damage

By LESTER H. FAULKINGHAM

*Superintendent of Electric Operations, New Bedford Gas and Edison Light Company*

Once an Atlantic tropical storm has built up to hurricane intensity, it becomes a matter of interest to us electric utility people in southeastern Massachusetts. The closer one of these storms approaches the East coast of the United States, the more our interest heightens; but when such a storm turns northward in close proximity to the coast line, we become quite concerned and anxiously await successive advisories on its position, progress and intensity.

During the week prior to Donna's visit to New England, you could have picked up bets on nearly any eventuality of Donna's future. On Saturday, September 10th, it seemed likely to most of us that Donna would cross southern Florida and dissipate her energies in the Gulf of Mexico. However, without so much as an "if you please," Donna turned sharply, swept up through central Florida, and set her sights on New England, and nearly tripled her forward speed in her haste to get here and wreak havoc upon us.

The hurricane advisory of 10 p. m., Sunday evening, indicated that Donna was approaching Cape Hatteras, North Carolina and if her then forward speed and direction were maintained, could be expected to arrive in southern New England by noontime Monday, the time of high tide in Buzzards Bay. This led our General Manager to declare a hurricane alert which set in motion our emergency procedure for hurricane preparedness and plant protection. These procedures had been carefully detailed in writing with copies placed in the hands of all our key people. They represented the best plans we could devise to minimize plant damage and expedite service restoration, taking advantage of the lessons we learned from Hurricanes Carol and Edna in 1954.

***Over 90% of line damage during the hurricane was caused by falling trees and torn off limbs hurled against wires. This is typical in any big storm when forest giants and soft wood trees are used for street plantings. The photo above shows wire, pole and tree damage.*** **Photo courtesy J. J. Felton, Inc.**

By 8:00 a. m., Monday morning: All electric motors and other machinery and equipment about the Gas Works which could be permanently damaged by salt water immersion were disconnected and raised or barricaded by sand bags. This applied to all equipment located less than 12 feet above mean high water. (Carol's flood waters reached 10 feet above MHW).

Hurricane Carol's arrival at the time of high tide caused tremendously heavy flood damage all along the shores of Buzzards Bay including flooding the basement

*(Continued on Page 8)*

# Hurricane Donna

## Aerial Equipment, Power Tools Speed Work Assignments

By Herbert J. Felton

*President and Manager, John J. Felton Inc. Warwick, Rhode Island*

As an arborist, active in line clearing operations in the State of Rhode Island and particularly for The Narragansett Electric Company, by brief discussion today will be, for the greater part, centered around observations, made in the field, relative to the part played by the arborist in the task of restoring electric service after the passing of Hurricane Donna.

In the period following the hurricane, the activities of the arborists aided materially in the complex problem of restoration of electric service on the system of The Narragansett Electric Company. I feel our personnel did a commendable job, and we have been so advised by the management of The Narragansett Electric Company. Incidentally, we are alerted when the approach of a storm is known by the management and immediately become a part of the restoration forces of the Company.

Fortunately, all six arborists employed in line clearance operations by The Narragansett Electric Company are completely mechanized for executing the clearance operations. The aerial equipment and power tools certainly made our work effective and efficient in executing our assignments in the restoration procedure. This high degree of mechanization did not always exist and credit for its availability in our area is directly associated with the vision of J. J. O'Brien, Supt. of Distribution and Transmission of The Narragansett Electric Company who, in June 1953, saw the great potential of such equipment and introduced its use in normal line clearance operations.

I am sure any agency supplying a service in this restoration program had varying thoughts during their operation after this storm. One of the first thoughts that I can recall rather bordered on the fringe at least of mild frustration. I realize this represents a feeling many people would not be prone to admit but some elaboration may explain my position.

Experience has proven that it is impossible to accomplish anything in the field in the matter of restoration during a storm accompanied by winds of hurricane velocity. As the storm raged, we utilized our time to check our equipment to insure that everything was in good working order and insure that our productivity would be at a peak once we were able to enter the field for work.

Unfortunately, this naughty Lady Donna was late in arriving with her full effectiveness and slow in passing through our area. The result of these strange antics was a delay in entering upon restoration work until the hour of darkness was upon us. True, we are equipped with flood lights for work under such conditions. However, because of the nature of tree conditions left in the wake of a storm of this nature, our potential for eliminating these conditions was appreciably reduced during the approximately eight hours of darkness in which we operated the first night.

However, everyone seeemed to put a greater degree of effort than usual into their varied assignments and we were able to make commendable progress during this initial period. I know that all arborist personnel like that of the utility tackles a job of this magnitude as a challenge to their ability to perform under adverse conditions.

Of course, the following day brought real ideal conditions for the continuation of the work and operations were greatly accelerated.

It may be of interest to you to inject a few words relative to public reaction with reference to our restoration efforts. I mention this becasue there were a few critical articles in our local newspaper but I'm sure they were not shared to any appreciable degree by the public at large.

As we progressed with our work, we had many inquiries as to when restoration of power and light might be expected in the areas where we were working. As we were working in close cooperation with line crews and as our normal duties of line clearance with this Company have given us more than a little knowledge of feeder circuits, switch locations, and key personnel of the utility, we were able, in many instances, to assure utility customers within a reasonable interval when they could expect service.

One point of great concern in the areas in which my crews operated was the anxiety relative to restoration of service to home freezers. I was not aware that the industry had succeeded in obtaining such a high saturation of food freezers in the homes.

I know it would not be proper not to

*(Continued on Page 9)*

## Request for Help Brings Line Crews From Four States

By George E. Wignot

*Supervisor, Southern Division, Transmission and Distribution, Boston Edison Company*

Hurricane Donna which swept northward along the eastern seaboard passed 25 miles west of Boston on Monday, September 12, 1960, causing extensive damage to Boston Edison 4 kv distribution circuits.

The storm reached the Boston area at 1:30 p. m. and passed at 8:00 p. m. reaching its peak at 5:30 p. m. Winds were recorded at Blue Hill Weather Station at 140 miles per hour and rainfall was 3.4 inches.

During the storm period 222 circuits tripped out resulting in outage to more than 160,000 of the 480,000 customers. By Tuesday evening most of the customers were restored and by the Wednesday evening, September 14, restoration of customers was substantially completed, with street lighting restoration completed several days later.

A Major Emergency was declared in effect by the President of the company at 12:30 p. m. when it became apparent that the hurricane would strike. The Emergency Plan of Operation included the assignment of all available company personnel to restoration duties.

Thirty-seven area restoration headquarters were activated and manned in advance of the storm. All Edison line crews were reorganized into 3 man crews and dispatched to the areas where they were assigned to trouble calls caused by the approaching storm. During the peak, these crews took cover but immediately started restoration of critical customers when the storm subsided. At this time, the 37 area crew supervisors made a quick general survey of damage by driving over a few miles of circuit and reported the degree of damage promptly. These field reports together with station reports enabled the Control Center to determine the requirements for outside crews. Prior to the storm, the automatic reclosure feature was removed from all the 4 kv circuits which contained overhead construction. Series street light circuits were held out at starting time on the day of the storm and were started after

*(Continued on Page 9)*

# Hurricane

by MR. FAULKINGHAM

*(Continued from Page 6)*

of our Cannon Street Station which resulted in a complete plant shutdown. To prevent recurrence of plant shutdown because of extra high flood tide up to 12' above normal high certain critical auxiliaries were placed at higher elevations by increasing the height of their pedestals, a high capacity pump was installed, low window sills were raised, and removable steel stop logs were provided for each outside doorway.

Vehicles were moved from the garage and parked in a nearby playground whose elevation was 10 feet higher than the garage floor (there was 4 feet of water over the garage floor in the 1954 storm). Garage tools and spare parts were placed on sheets of plywood and across the car lifts and the car lifts then run up.

Garage and stockroom doors were barricaded by sand bags. The stockroom basement was cleared of all supplies susceptible to immersion damage.

The poles in the pole yard were lashed down by chains to guy anchors permanently installed for that purpose. (In 1954, floating poles knocked down some of our sand bag barricades).

The 10:00 a. m. advisory located Donna's eye about 50 miles southeast of Cape May, New Jersey and travelling NNE with the expectation that it would cross Long Island and enter New England by mid-afternoon.

The Mayor of New Bedford declared a state of emergency within the City, ordered all pleasure vehicles off city streets and at 11:00 a. m. closed municipal offices to the public. The New Bedford merchants closed their stores at 11:30 a. m. and at noon many industrial plants closed down for the day. We released our female clerical help. We were convinced that it would be quite imprudent to further delay preparing ourselves for a service restoration program of major proportions. Accordingly, we called out-of-state contractors and utilities to pull together line, service and tree crews and to schedule their departures for arrival at New Bedford ready to go to work the following morning (Tuesday the 13th) at 7:00 a. m.

All distribution substations were visited to cut out the automatic reclosure devices so that every circuit breaker would remain open once it had tripped. This was done to prevent hazard to the public which would ensue from re-energizing fallen wires. In this regard also instructions were issued to open any circuit on which sparking wires down in the streets were reported by municipal authorities (either fire or police).

**The Hurricane Hits**

It began to rain hard during the lunch hour. The winds gradually increased intensity until hurricane force was reached shortly after 2:00 p. m.

Our first distribution circuit tripped out at 2:26 p. m. Within an hour, 29 additional circuits tripped out, disrupting service to about 27,000 customers.

Apparently the eye of hurricane Donna passed quite close to New Bedford, for there was a lull in the storm from 3:30 to 4:30 p. m. However, by 5:30 p. m., the storm was raging harder than the first phase and maintained this extremely high force with gusts in excess of 110 MPH for about an hour and a half, but with very little rain. During this backlash, 15 more circuits tripped out bringing the total number of customers affected up to some 40,000 or 70% of our 55,000 customers. The winds began to abate slowly after 7:00 p. m. By 8:00 o'clock it was fairly quiet out.

Incidentally, the tide crested at 3:30 p. m., at 5 feet above a normal high tide, so that we experienced little flood damage except for about 250 tons of coal which washed overboard.

We estimate that over 90% of the damage to our overhead lines was caused by falling trees and torn off limbs hurled against our wires. By way of illustration, let me quote a few excerpts from the Tuesday evening edition of the New Bedford Standard-Times:

1) A huge tree toppled across Ashley Boulevard between Shaw and Clifford Streets. City tree crews aided by Civil Defense trucks and equipment sawed off branches and braced the trunk back to a near upright position to clear street passage.
2) Brooklawn Park was littered with uprooted trees and fallen tree branches. One tree split down the trunk, dropping a huge limb across the sidewalk opposite St. Joseph's Church.
3) Trees around Ashley School also toppled, with other sheared off branches and limbs.
4) An uprooted tree tore up a portion of sidewalk on Wood Street.
5) A towering tree toppled at 129 Allen Street (in front of a funeral home). Workers from the City's forestry division were hurriedly dispatched to the scene and began work of removing the fallen elm. A funeral was scheduled there this morning.
6) Huge trees were uprooted in Hazelwood Park and on numerous side streets. One tremendous tree was stretched full length across Brock Avenue near Butler Street.
7) Aquidneck Street on the East side of Brock Avenue was blocked by another huge tree.
8) Buttonwood Park was badly damaged. Dozens of elms were uprooted or broken off at the trunk.
9) One large elm near Union and Cottage was uprooted, pulling up 21 feet of sidewalk.

In practically all these instances our wires came down with the trees. In a few cases where the wires were too large and strong to stretch or break, the utility poles were carried down too.

Undamaged portions of circuits were switched over to energized feeders which restored service to about 10,000 customers fairly quickly. Our line departments' efforts were directed to restoring service to priority customers.

First attended to were hospitals, police and fire departments, water pumping stations, sewerage pumping stations, cold-storage warehouses and big freezers, big dairies, large bakeries, and industrial plants.

Once these essential services were restored, we followed a secondary priority list that takes in smaller dairies, stores and the like. The emphasis is on essential municipal services, food supply and jobs.

Once the safety, health, and employment of our customers were provided for our crews put primary power lines back in services, then secondary lines, and finally individual services and street lighting.

After midnight no new work assignments were given to our line crews. As each crew finished the last assignment, the men were released and told to report back at 6:00 a. m. The night troublemen who were not scheduled to work during the next day shift, were used to cut clear damaged portions of circuits and to re-energize such circuits up to the point of trouble.

Traveling conditions rapidly improved during the course of Tuesday morning as the municipalities cleared away trees and limbs left in Donna's wake. We employed 5 Tree Crews (17 men) to assist in this task and especially to prepare the way for our line crews to go to work putting the wires back up. Their power equipment consisted of 4 skyworkers, 2 chippers, and 6 power saws. Our 9 service crews were augmented by 4 line crews from other utilities and 14 contractors' crews. These forces were deployed throughout our territory, so that each community had at least one crew working on the lines in its area. By midnight on Tuesday, a review of the day's activities showed that service had been restored to 11,000 customers leaving about 19,000 still without electricity.

By Friday night this was reduced to about 1,000. 90% of these were customers whose individual service wires had broken between pole and house or pulled away from the house. The other 10% were located along the shoreline where cellars had been flooded and consequently needed approval of the municipal Wire Inspector before reconnection could be made.

During this period we were continually bedeviled by weakened limbs that finally gave way and knocked out lines that had been restored.

On Saturday we released our outside utility and contractors' crews to go home for a well-deserved rest, but kept our own crews busy picking up services as the Wiring Inspectors gave clearance for reconnection.

However, this was not the last of Donna! She sent her small third cousin to spring the booby trap she had set for us, namely salt deposits left on line insulators from wind borne ocean spray. The rain usually accompanying a hurricane acts to wash off the salt deposit as fast as it accumulates; but since the latter part of Donna was dry, this did not occur.

On Tuesday (September 20th) a slow moving lightning storm deluged New Bedford with 5 to 7 inches of rainfall. So long as salt remains dry, it is a good insulator, but when moistened it becomes a fairly good conductor. It was a hard race to reclose circuits as fast as they tripped out. In several places, particularly in the Horseneck Beach area, insulator arc-over burned down the primary conductors. Our only consolation was that the continued heavy rain did a pretty fair job of washing all the remaining salt off the insulators so that little trouble of this kind was experienced subsequently.

## Hurricane

by MR. WIGNOT

*(Continued from Page 7)*

the storm after it was established that each circuit was closed.

One hundred and five line crews were brought in from Michigan, Ohio, Pennsylvania and New York. Cleveland Electric Illuminating Company and Consumers Power Company sent men immediately by plane, the crews being provided with vehicles and equipment when they arrived at Boston. Niagara Mohawk Power Corporation sent crews promptly over the road. Other utilities released contractor crews to us which arrived in Boston over the road. Tree crews were on the system immediately following the storm.

Edison crews worked through the first night and second day. Outside crews began to arrive about 12 hours after the end of the storm and did a most excellent job.

Survey crews performed some survey work during the first night and got underway with a full staff at break of day on Tuesday, September 13.

Progress was reported to the Control Center each day at 10 a. m., 1 p. m., 4 p. m. and end of day. Shifting of crews from one division to another was effected as determined from the Control Center Progress Board.

The damage to wires was due principally to falling limbs and to a considerable number of falling trees. The pole plant withstood the extra mechanical stresses due to falling limbs and trees exceptionally well as only 75 poles were broken out of a total of 150,000.

*Convoy of outside utility crews checking in at the receiving center at Framingham, Mass.*

**Photo courtesy Boston Edison Co.**

Basically the Major Emergency Plan was found to be sound and provided the organizational structure by which the company and outside personnel could effectively restore service reasonably quickly following disastrous storms.

## Hurricane

by MR. FELTON

*(Continued from Page 7)*

say a few words at least in tribute to Tree Wardens, and employees of City and Town highway and forestry departments, for the splendid co-operation they gave us to simplify our operations. Circumstances made it impossible to leave our scene of operations in a clean and tidy state. These situations were cleaned up in all cases to the satisfaction of the public by Town or City personnel, and it certainly allowed us to be real effective in restoring electric service. The local police departments were also most co-operative in co-ordinating our activities with services of highway departments where traffic hazards might otherwise have existed.

I would like to comment briefly about the nature of the tree damage encountered after this storm. In discussing this subject, I think it is well to make a comparison with a previous hurricane, Carol, which hit our area in 1954. After Carol, we had extensive tree damage of all types in most areas of Rhode Island. There were many uprooted trees of all species laying across lines, which necessitated a complete topping operation before the lines could be freed. There were many broken limbs, large and small, laying across lines or down through the lines. Again these conditions seemed to be in all species of trees. Thn, too, there were thousands of hangers and twisted limbs above lines which presented a potential hazard after service had been restored. The removal of these hangers from all feeders in the Narragansett Electric Company system constituted a lengthy and costly operation for a few months following Hurricane Carol.

Following Hurricane Donna, there seemed to be relatively few uprooted trees in the vicinity of the overhead circuits. Where they did occur, there usually was evidence of greatly reduced anchorage due to the roots having been severly cut because of road construction.

There were a great many broken limbs found across wires but, in general, these instances seemed confined generally to tree species having weak wood structure. A large number of hangers existed but here again, not in the volume of 1954 and in most cases in trees most susceptible to storm damage. The one exception seemed to take place in oak trees. Many small hangers showed up and I believe in many cases, these were the result of limbs, weakened by twig girdlers which have been prevalent in our area for several years.

One method of comparing storm damage relative to the experience in Donna vs Carol is in cost figures. The figures I am using were received from Mr. McCann, Line Clearance Supervisor of The Narragansett Electric Company. After Hurricane Carol in 1954, approximately $117,000 was spent for tree work of various types. After Donna in 1960, approximately $14,000 was spent for tree work due to the storm. After Carol, the hanger situation existing after restoration was so extensive that the management believed that the entire situation should be cleaned up along primary feeder routes. As a result, regular maintenance line clearance was held in abeyance until all hangers had been removed that were endangering the feeder lines. This operation accounted for the major portion of the $117,000.

A survey conducted after Donna gave assurances that no great risk would be involved in clearing most of the hangers when regular maintenance trimming would take place. In the survey, hang-

*(Continued on Page 20)*

# Soil Management

By Wallace A. Mitcheltree
*Extension Specialist in Soils, Rutgers, The State University of New Jersey*

What is soil? Soil is a very living and dynamic system that is fragile and perishable. It must be managed with dexterity and treated with care. Soil is made up of about 45% sand, silt and clay particles, around 5% organic matter, about 30% air and about 20% water. This, of course, is a good fertile soil that is in a good growing condition. This analysis of the soil shows that we have solids, liquids and gases, all operating as one and all being governed and controlled by laws of nature. Nature has been very unique in designing a matrix that can manage all of these states of matter in the proportions which are most desirable for plant growth.

You know what sand is because you can see it and feel it. Silt is considerably smaller than sand; it cannot be seen by the naked eye but can be seen very plainly with a microscope. Clay, on the other hand, is so much finer than silt that it cannot even be viewed with the conventional miroscope. If we had a particle of clay the size of a cigar box a piece of silt would be the size of a large house and a piece of sand would be the size of the Empire State Building.

If there were no laws of behavior in the soil the sand would form the skeleton, the silt would fit between the sand, the clay betwen the silt and the soil would be a solid compact mass of 100% sand, silt and clay particles.

Nature has endowed soil with a phenomenon called aggregation. It is simply a case where a certain number of sand, silt and clay particles cluster together to form a group, a family, or what we call an aggregate. These aggregates are arranged much as marbles in a water glass, the sand, silt and clay particles being contained within the aggregate, the aggregates laying against and on top of each other in such a manner as to allow large pore spaces between them. The affinity that has pulled the sand, silt and clay particles together into the aggregate is a very weak force and raindrops or traffic will disintegrate these aggregates and cause them to break into their separate fractions. Once these aggregates break back into their separate parts they start to sift down through the soil or are carried by the downward movement of water and fill in the pore spaces of the non-disintegrated aggregates below them, again forming a solid compact mass.

The 5% organic matter that we mentioned a little back now comes into play. Organic matter that one can see in the soil and recognize has not yet begun to do its work. After it is decomposed it then becomes valuable to the soil. When organic matter completes its decomposition its end product is a brownish, sticky, gelatinous liquid called humic acid. This humic acid adheres to and coats these weakly cemented aggregates and gives them a certain stability. After these aggregates have been coated with the humic acid their shape can be changed, they can be struck by falling rain water or compressed by traffic and will not disintegrate into their sand, silt and clay fractions.

Now let us see how this aggregation affects the way water acts in the soil. If we were to start with a perfectly dry soil the pore spaces between the aggregates would be completely filled with air. As water enters the soil it would fill these pore spaces completely. When the pore space is completely filled with water the soil is said to be saturated and there is no air in the pore spaces. In neither case, that is where the pore space is completely filled with air or where it is completely filled with water, can plant roots survive, since the roots need moisture and they also need air.

Here the effect of gravity comes into the picture. If you were to drop something from your hand the pull of gravity would pull it directly towards the center of the earth. This same pull of gravity is working on the water that is in the soil, trying to pull it towards the center of the earth or at least down to the water table.

### *Film Strength*

Another force comes into play which counteracts part of this force of gravity. If you were to dip your finger into a glass of water and lift it out, gravity would pull the greatest share of the water off of your finger. However, there would be a certain film of water adhering around your finger. This is because the molecules of water attach themselves on the surface to such an extent that they form a film adhering to your finger with a greater force than the pull of gravity can exert to pull it off. This is referred to as film strength of water. If you were to tap your finger lightly a certain portion of this water would fall off and the film would become thinner. You would find to remove more of that water from your finger you would have to do more than tap your finger gently, because the thinner this film becomes the tighter it adheres to the object which it surrounds. By tapping your finger very vigorously you can remove a great portion of the water adhering to it but there will still be a very thin, tightly adhering film of water remaining. The remainder of this water can be removed only by drying or wiping the finger.

In the soil as the gravity pulls the water out of the pore space a certain amount of water adheres as a film around each one of the soil aggregates. When gravity has pulled all the water out of the soil that it can pull, the soil is then said to be at field capacity or to contain its optimum amount of water and air. We find now that we have our 45% of sand, silt and clay bound together into aggregates with the 5% organic matter and 20% of the soil is water adhering as a film around the aggregates, and the other 30% of the soil is an air pore space existing between the films of water. As the plant root travels through this soil, that is at field capacity, it finds no effort whatsoever to draw water from this film and incorporate it in the body of the plant, but as that film is used by the plant it becomes thinner around the aggregate and the plant root must exert more force to extract the water. This process continues until the film gets down so thin that it exerts so much force that even the plant root cannot exert a force great enough to remove any more water from the aggregate. At this point the plant wilts and dies. This is termed the wilting point of the soil. The amount of water, therefore, between the field capacity and the wilting point is the available amount of water that that soil will give up.

### *2 Kinds of Compaction*

There are two kinds of compaction that can occur in a soil. One is a physical compaction from just plain traffic. When a heavy rubber tired tractor travels over the soil it can smash these aggregates down one upon the other very tightly, squeezing the aggregates into the pore space of the aggregates below it but not actually breaking the aggregate. This type of compaction is not too serious, since the next tillage operation or a good freezing will break these aggregates one from the other, creating a new pore space between each of the original aggregates. The other type of compaction is when the aggregate breaks because of an insufficient coating of organic matter and the aggregate falls apart, disperses into its sand, silt and clay fractions, and filters down through the soil, filling the pore spaces between the unbroken aggregates below it. This is a serious type of compaction. It is normal and natural for some of both types to be taking place continuously and constantly during the growing season. This natural compression of the unbroken aggregates comes about as a result of traffic or rainfall or irrigation, but cultivation, plowing and frost again will alleviate it.

When an insufficient amount of organic matter is present a great number of the aggregates break down under traffic, rainfall and irrigation, causing a

*(Continued on Page 12)*

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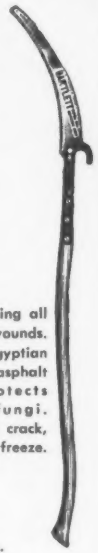

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*(Continued from Page 10)*

high percentage of this serious type of compaction. Soils that are under a good organic matter management plan do not tend to disintegrate as rapidly as ones that have been under continuous cash cropping and do not have a source of organic matter to form humic acid to stabilize aggregates from year to year. The less traffic, the less rainfall, and the less irrigation on a field, the less compaction that soil experiences of either type. Irrigation is a soil deteriorating practice because it adds more raindrop impact to the soil than it would normally experience without rain, plus the fact that the soil is kept moist a greater part of the time and the aggregates are less stable when moist than when they are dry. Therefore, the more irrigation the more likely to be the breakdown and compaction of the aggregates. Soil, therefore, that is under irrigation must definitely be given the advantage of developing stronger, more stable aggregates. The only way that stronger more stable aggregates can be developed is through the use of organic matter, and the only way organic matter can be added to the soil to date is through cover crops and sods.

The way a plant obtains its nutrients is quite unique. When one thinks of nutrients and fertilizers they must think in terms of chemistry and chemistry is based on positive and negative electrical charges. All stable chemical compounds are made up from equal numbers of positive and negative charges. Any compound with an unequal number of plus and minus charges is unstable and generally will not persist.

Like charges repel each other while unlike charges attract. Two positively charged chemical ions want nothing to do with each other while equally charged positive and negative ions strive to unite, thereby forming a stable chemical compound. The number of charges vary with the chemical elements concerned and the combinations must be such that the charges are equal.

Examples of such unions are muriate of potash, a common fertilizer material, which is potassium chloride (KCl). Here the potassium or K has one positive charge K+ and the chlorine Cl has one negative charge Cl—, hence a stable compound is formed. In the case of potassium sulfate $K_2SO_4$, another common fertilized material, the potassium K has one plus charge K+ but the sulfate radical $SO_4$ has two negative charges $SO_4$—hence it takes two potassiums to satisfy the one sulfate, thereby making it $K+K+=SO_4$ or $K_2SO_4$.

Such chemical compounds can be made to separate or ionize if put into solution or dissolved in a solvent such as water. If some potassium chloride $KC_1$ is stirred into a glass of water it disappears or dissolves. The K+ and CL— separate as such and begin to operate separately. At this point the compound is subject to change if some other properly constituted compound is present. If silver nitrate $AgNO_3$ (Ag+ $NO_3$) should be introduced at this time the silver and chloride would unite, forming silver chloride Ag + Cl— or AgCl and the potassium and nitrate would unite to form potassium nitrate K+ $NO_3$ or $KNO_3$. The silver chloride would precipitate to the bottom of the glass as a solid.

Earlier we said that soil was made up of sand, silt, clay, organic matter, air and water. The clay and humic acid are the chemically active solid components of the soil. These two solid portions are chemically active because they are made up of a huge number of minus electrical charges.

When a fertilizer material such as potassium chloride KCL is added to a soil it dissolves in the soil water K+ Cl—. The Cl— is pushed away from the soil particle containing the negative charged clay and organic matter, out into the soil solution where it can ultimately be leached or flushed from the soil. The K+, on the other hand, is attracted to the negatively charged clay and humus, forming a K+ Clay or K+ Humate. This combination now remains, for all intents and purposes, until the plant can absorb it for growth.

The plant obtains this K+ in a unique way. The root must rummage around through the soil until it finds the K+ since the K+ has now become practically immovable. This explains why the roots of even a mature plant must continue to grow and forage for nutrients. When the root comes in contact with the K+ a new operation comes into play. All of the root hairs can exude a weak carbonic acid. This acid contains Hydrogen H+. The root now trades or swaps H+ to the clay or humus for its K+. This is referred to as a cation exchange and the capacity of the soil to carry out this function is called the exchange capacity of the soil.

If a soil has a small amount of clay and organic matter it will, of course, have a small number of minus charges and will, therefore, have a low exchange capacity or what might be thought of as a low fertilizer holding capacity. If, on the other hand, the soil has large amounts of clay and organic matter it will have large numbers of minus charges, hence a high exchange capacity or high fertilizer holding ability. In a high exchange soil enough nutrients can be stored in an available form to carry the plant through the entire growing season while on a low exchange soil only enough fertilizer can be stored to carry the plant a portion of the growing season, hence the necessity for mid-season fertilization.

Potassium is not the only ion that is stored in such a manner—all the other cations are stored the same. Ammonium $NH_4$+, magnesium Mg++, calcium Ca + +, sodium Na + are some examples. It is important when fertilizing

a soil that no one ion is stored in a large excess of its needs, since it would take up the storage space needed for other essential elements. For this reason too much of one element can cause a deficiency of another one.

*Soil Testing*

Soil testing is simply a means of determining an inventory of the ions stored in such manner. The total potassium content of a soil is no indication of the potassium supplying power of a soil because much of the potassium in a soil is chemically combined in such a manner that plants cannot exchange for it. Only that potassium that is held in the above explained manner is readily available and it is the job of the soil test to measure this potassium only.

Plants differ somewhat in their requirements for nutrients but this difference is not a vast one. Some plants might require more nitrogen, or magnesium for top yields but generally if the exchange capacity is loaded according to its normal distribution of ions any plant will do a good job of producing. The normal distribution is something of the order of calcium 65%, Hydrogen 20%, magnesium 9%, potassium 5%, all the rest comprising about 1%.

A soil test can determine if any one of these are way out of line and then a matching fertilizer ratio can be used to equalize it. If the soil has a normal distribution then a common utility ratio such as 5-10-10 will do a good job. The amount of the fertilizer to be used depends upon the natural consumption of the plants involved. I would say that two pounds of a 5-10-10 fertilizer per 100 sq. ft. of soil surface would be a normal application for most trees. This supplies 0.1 lbs. of nitrogen, 0.2 lbs. of phosphrous and 0.2 lbs. of potassium per 100 sq. ft. or 40 lbs. of nitrogen, 80 pounds of phosphorus and 80 lbs. of potassium per acre.

So long as all these nutrients are relatively close to this proportion the plant will not die even if their amounts are quite low. The plant will continue to live and grow slowly and to increase the amount will increase the growth rate. It is when the proportions are badly out of line that deficiencies and serious difficulties are experienced.

*Six Basic Principles*

There are six basic principles of soil management that apply to all soils. These six principles are (1) matching the crop to the soil, (2) the proper use of organic matter, (3) rotation, (4) keeping the topsoil in place, (5) proper use of lime, and (6) the proper use of fertilizer. Some soils have the faculty of being able to produce practically any crop and producing it well. Other soils have certain limitations that prevent some crops from growing on them. Drainage,

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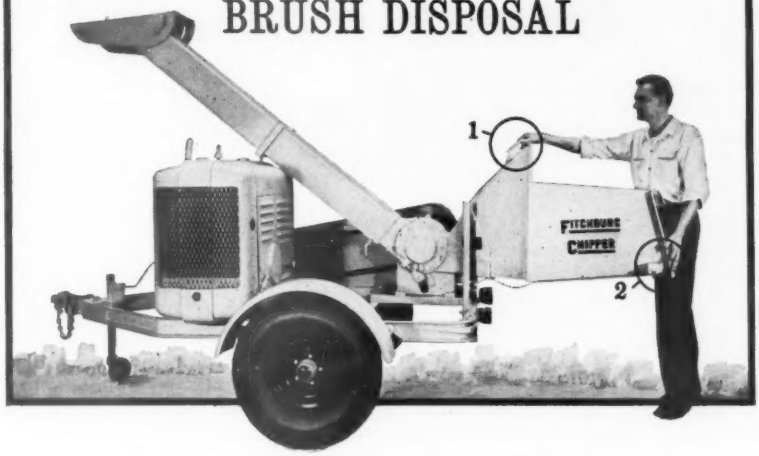


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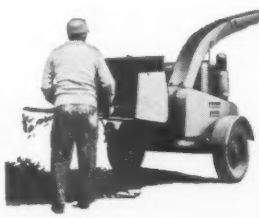

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*(Continued from Page 13)*

erosiveness, permeability, and a number of factors such as these can actually alter the personality and the character of a soil to such a degree that it may actually be limited to the production of a relatively few crops.

Organic matter is a very essential part of soils and, therefore, any soil management scheme must include in some manner or means the use of organic matter. This can be done by the use of cover crops and sods or mulches. The type of management used will depend upon the soil, the crop and the potentials of the grower.

Rotations are extremely important in handling most soils. When I think of rotations I think in terms of a sod being used periodically on a piece of ground along with cultivated crops. The sods allow the soil to heal its broken aggregates and the organic matter from the decomposing sod and the cover crops delay the breakdown of these aggregates.

Keeping the topsoil in place is a very important item since topsoil performs certain functions that the subsoil cannot perform, such as allowing water to enter the soil and containing a large share of the most available nutrients. How the topsoil is held in place is a matter that is entirely up to the farmer. He should be able to keep this topsoil in place in any manner that fits with his cultural scheme —but the topsoil should be kept in place.

Lime is actually the adjustment valve on a soil. I like to think of it as the air jet on the carburetor of a tractor. If it is too lean the tractor does not work properly; if it is too rich it does not work properly. Lime adjusts the nutrient release and the bacterial decomposition of a soil. Therefore, it is the adjustment valve and it should be used to its greatest advantage. Liming should be done by soil test which allows the farmer a scientific means of telling when this adjustment is proper.

The right amount of the proper type of fertilizer is a very essential part of any soil management. This can vary a great deal, both as to amount and types of fertilizer, due to past management, present soil conditions and crops that are being grown. A great deal can be gained by using the soil test to determine and inventory the soils from the nutrient status and then to adjust this with the use of commercial fertilizer so as to obtain the most desirable growth.

When these six practices are carried out to the best of one's ability the management requirements needed for the production of good crops will be greatly reduced. Any farmer should strive to manage his soil in such a manner that he will acquire his greatest yields and at the same time improve his soil so that the following year he will have fewer problems rather than more.

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D-X Insect Spray, Pratt's Nicotine Spray, Malathion Sprays, 20% Lindane, 72% Chlordane are also popular Pratt sprays for the public sprayer, city forester and park superintendent.

**B. G. PRATT CO.**

204 21st AVENUE
PATERSON, NEW JERSEY


## J. F. Wootten Transfers To Atlanta, Georgia

*John F. Wootten in one of his working poses —photographing insect damage on a pine twig.*

John F. Wootten, entomologist, recently transferred from the U. S. Forest Insect Laboratory, Delaware, Ohio, to Atlanta, Ga., where he will head up Federal forest insect survey and control work in the southeastern region.

Considered an expert on Dutch elm disease, Mr. Wootten is also experienced in insect detection and damage appraisal, having directed this activity in the Central States for several years. Recently he has been doing some pioneer work in the use of viruses to control the European pine sawfly in plantations.

"We're losing a good man," commented Russell R. Whitten, Chief of the Division of Forest Insect Research at the Central States Forest Experiment Station, "but we're confident that his experience and abilities will be put to good use in this new position."

Before leaving Delaware, Mr. Wootten donated and helped plant two Ginkgo trees at the Forest Insect Laboratory grounds.

## McCulloch Appoints New Distributor

McCulloch Corporation, Los Angeles Division, announces the appointment of the newly-formed Twin C-McCulloch Company, St. Louis, Mo., as their distributor for Missouri and Southern Illinois. The former distributor, C & F Equipment Co., has been dissolved.

The Twin C-McCulloch organization is headed by Cyrus J. Cacioppo, until recently serving as assistant general manager to his brother, Carlos Cacioppo, general manager of Timberland Saw Co., Marshall, Tex.

# Green Thumb Peat Is Unbeatable

## ...NATURAL!

## ...LASTING!

## ...EFFECTIVE!

**AERATES—HOLDS MOISTURE—AIDS ROOTING**

***Facts Every Plantsman Should Know About Green Thumb Peat:***

1. 97% pure, organic sedge reed, bacterially high content.
2. One cubic foot makes upward to 50 cu. ft. of good soil, or 15 cubic feet of rich organic soil.
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7. The most efficient and economical soil building nature product in existence.

***"Green-Up America With Green Thumb Peat"***

**PRICES ON TRUCK OR CAR LOADS ON REQUEST**

**GREEN THUMB PEAT-HUMUS CO.**

CAPAC, MICHIGAN

# Sacramento Fights the Japanese Beetle

Infestation of the Japanese beetle (Popillia japonica) was discovered for the first time in California on June 7 this year by Marius Wasbauer, bureau entomologist for the California Department of Agriculture. The discovery was made in Capitol Park.

According to Robert W. Harper, chief of the Bureau of Entomology, it is expected that the first year's operation will cost approximately $200,000. The project is being financed 50% by Federal and the balance by the State of California and the County of Sacramento.

Since the discovery:

- five foliage treatments have been made in an 1,800 block area
- 65 employees have been assigned to the Japanese beetle program
- 171,000 gallons of Sevin 4-Flowable and 33,000 pounds of Sevin dust have been used.
- approximately 10,000 man hours have been spent spraying
- approximately 3,100 man hours have been spent to survey operations
- approximately 3,000 beetle traps have been set
- as supplemental treatment, applications of granular or liquid applications of chlordane, 10 pounds per acre, were applied to lawn and sod areas for grub control during the latter part of July.

The following information has been condensed from a series of Japanese beetle progress reports, issued by Mr. Harper.

Ten days after the first discovery, 200 adult beetles were taken, more than 50 in Capitol Park, the balance eight to twelve blocks southwards. Infestation was found over an area measuring one mile by one-half mile. All nurseries within 10 miles of Capitol Park were examined, but no positive finds were made. Sevin 4-Flowable, at a rate of one pound per acre, was used for foliage treatments. Dead beetles were recovered within two hours after treatment and park traps that took beetles daily failed to show record infestation day after spraying.

Three weeks after the discovery, about 1,500 beetle traps were in service and 500 city blocks were subjected to property-to-property visual inspection. Spray equipment in use included four hydraulic, two turbine, one mist and two high velocity dusters. Orders were placed for two more hydraulic and two rotomist sprayers. Feeding damage was observed primarily on roses and shrubs. In one instance 42 dead beetles were recovered from beneath a pyracantha hedge.

*In front of the Capitol Dome at Sacramento, officials look at Japanese beetle trap to be set. L to R—Robert W. Harper, chief, bureau of entomology; Forrest Darby, Sacramento County agricultural commissioner; Charles Paul, director, California Department of Agriculture; Patricia Larson, secretary, bureau of entomology; and John Watson, president, state board of agriculture.*

*A crew of men making Japanese beetle traps for field deployment.*

A month after the first discovery over 2,700 traps were in service and trapping was expanded into adjacent portions of Yolo, Contra Costa, El Dorado, San Joaquin, Placer, Sutter and Yuba Counties.

On August 15 an adult male Japanese beetle was taken in a trap at Mather Air Force Base, 14 miles east of downtown Sacramento. Mr. Harper said it was the Bureau's opinion that the collection represented a "hitch hiking" beetle from the Eastern U. S. Several dead Japanese beetle specimens were recently taken from jet planes at nearby McClellan Air Force Base and other major airport facilities in California.

No adult beetle specimens have been taken elsewhere in the Sacramento-Yolo County eradication area since July 26. Grub infestations were found for the first time on August 4 in a lawn parking in Sacramento.

Foliage treatments were terminated for the season August 16 with the completion

of the fifth application. Chemical analysis indicate that high residue deposits will remain effective for sometime to come.

As of the latter part of August, no other known infestation of Japanese beetle has been reported in California.

Prior to the discovery in Sacramento, established infestations of the Japanese beetle had not been found west of the Mississippi River except at St. Louis, Missouri and Fort Madison, Iowa.

## Book Reviews

PLANT PRUNING IN PICTURES by Montague Free. Doubleday & Company, Inc. 575 Madison Avenue, New York 22, 283 pgs., illus., $4.95.

This latest book by Mr. Free is intended as a companion volume for his earlier, "Plant Propagation In Pictures." This book is illustrated with 320 photographs and 74 line drawings.

"Plant Pruning in Pictures" offers step-by-step instruction in the techniques of pruning both woody and herbaceous plants and covers fruits, herbs, trees, bonsai and topiary.

Mr. Free, author of ten books and dozens of articles on gardering, was head gardener at the Brooklyn Botanic Garden for over 30 years. He originated the rose garden, the rock garden and the tree and shrub collection at the BBG.

* * * *

PALMS by Desmond Muirhead. Dale Stuart King, Publisher, Six Shooter Canyon, Globe, Arizona, 140 pgs. illus., card cover, $2.00.

According to the author, this book was written to fill a gap in the recognition and knowledge of the different types of palms, and to guide people to plant them to improve the landscape, rather than to mar it.

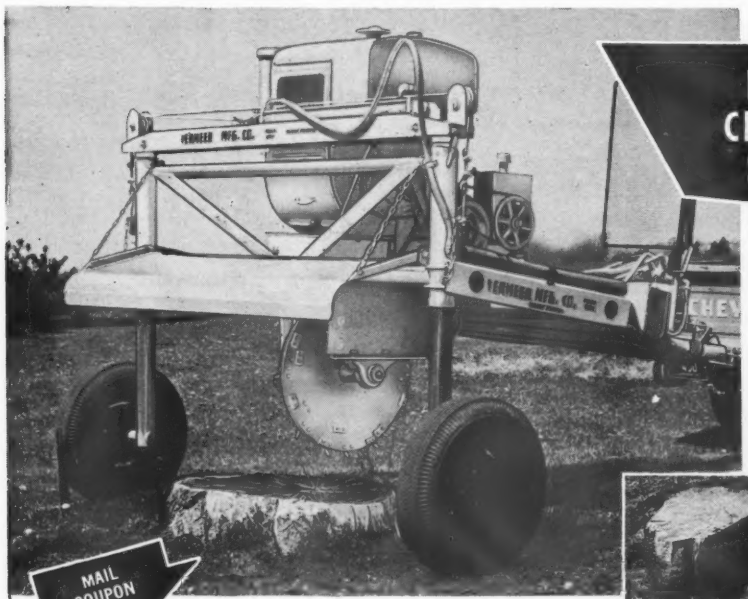
Although this book is specifically directed to people living in Arizona and California, those living in Florida, Hawaii and other warm or sub-tropical areas should find it useful, as pracitically all the palms mentioned will grow wherever they are hardy.

The chapter "Palms in the Landscape" is in itself worth the price of this publication. Other chapters include: Hardiness, Planting, Pruning, Propagation, Diseases, and 10 others. There are about 100 pictures and illustrations of various palms and ideas for fitting them in the landscape.

(Additional reviews on Page 22)

*Roto mist blower applying concentrate Sevin spray to tall shade trees. Five foliage treatments have been made in an 1,800 block area since the infestation of Japanese beetle was first discovered.*

You Won't Want To Miss
The Next Issue of
**TREES Magazine**
We'll be celebrating our
25th Anniversary

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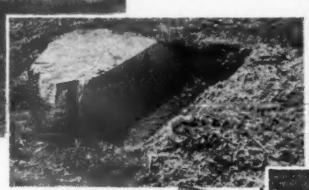
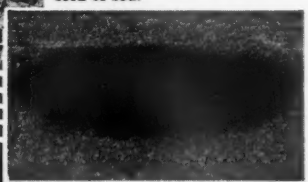
Rips Stump To Shreds In Minutes!

You'll save hundreds of back-breaking man-hours and thousands of dollars annually . . . with a Vermeer Pow-R-Stump Cutter. The choice of tree experts everywhere! It's the modern way, the economical way to remove ugly stumps. Mail the coupon for all the details . . . and a FREE demonstration.



Photos show how big revolving cutting wheel rips stump to chips . . . down to 10" below the ground. Dirt is replaced, chips removed and area is ready for seed or sod.



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# BRANCHES OF THE LAW

By Howard Newcomb Morse

*Counsellor at Law of the Supreme Court of the United States of America*

**"A Canadian Tree Case"**

Philip F. O'Connor was the owner of a dwelling house and lot in Halifax, Nova Scotia, fronting on Spring Garden Road. In front of the house by the street were several ornamental trees. The deed to O'Connor from the former owner, Patrick Walsh, described the land as being bounded by the street.

When Walsh was the owner and in possession, he had planted these trees, and from that time until his death, had cared for them, frequently hiring men to prune and otherwise attend to them. O'Connor, since Walsh's death, had performed that duty. The trees were beneficial to O'Connor and his property. The Nova Scotia Telephone Company, Ltd., in erecting a telephone line along the street, cut down portions of these ornamental trees in such a way as to lessen their beauty and to diminish the shade which they afforded for O'Connor's house.

O'Connor brought an action in the Supreme Court of Nova Scotia against the company on the ground of alleged trespass. The court found that the cutting by the company was a mutiliation of the trees, injuring their appearance materially and rendering them unsightly particularly from O'Connor's windows, and further that the cutting was not an absolute necessity for the performance of the company's business. However, the court directed a verdict in favor of the company for the announced reason that title to the street was in the Crown, and that, therefore, the property of the trees damaged, being in the Crown, O'Connor could not recover for damage done them even by a trespasser.

O'Connor appealed. The Supreme Court of Canada reversed the decision of the court below and entered judgment for O'Connor. The Supreme Court held that:

(1) there is a presumption of law that the ownership of land adjoining a street extends to the center of the street,
(2) this presumption exists even though the land is described in the deed as bounded by the street, and
(3) there was nothing in the evidence to rebut the presumption of ownership to the center of the street.

**"Destruction of Trees by a Public Utility"**

The Florida Power Corporation, a public utility corporation, intended to extend an electric transmission line across poles to be placed on 68th Avenue in the unincorporated area of Pinellas County, Florida. This street, which, although dedicated to the public by subdivision plat, had not been developed and the dedication thereof had not been accepted either by public user or action of the County Commission, was 30 feet wide.

In preparation for the erection of the line the company engaged W. W. Hardee to clear a 30-foot right-of-way along 68th Avenue. Through error on his part, Hardee cleared a strip 100 feet wide. Trees were cut not only from the 30-foot right-of-way, but also from the lands of the National Rating Bureau, Inc. abutting the street on both sides. Five slash pine trees approximately eight inches in diameter were cut from the right-of-way and twenty of these trees were cut from the lands on both sides thereof.

The bureau brought suit in the Circuit Court of Pinellas County against the company to obtain damages for the destruction of the twenty-five trees. The court dismissed the suit, and the bureau appealed.

The Supreme Court of Florida reversed the action of the lower court and issued a decree in favor of the bureau. The Supreme Court stated:

". . . an abutting owner has a property interest in trees in a street adjoining his property which gives to him a right to recover for destruction thereof by a public utility furnishing light and power for commercial use."

## Charles A. Heath Elected

Charles A. Heath has been elected president of Heath Tree Service, Richmond, Michigan, according to an announcement by Milton W. Heath, Chairman of the Board. Heath Tree Service is primarily engaged in line clearance work for utilities.

**NEW NYLON-BACKED CLIMBING SADDLES**

More than 100% stronger, 7 oz. lighter, and more durable than present Webbed saddles.

*SEND FOR DETAILS*

**Fruit Growers of Chester County, Inc.**

West Chester, Pa.

Complete line of Tree Surgery Supplies

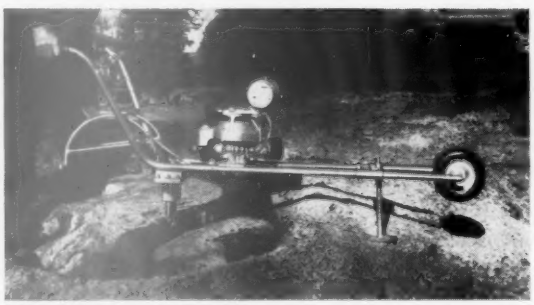
*SEND FOR CATALOGUE*

**SPEEDY STUMP REMOVER**

***No Stump Too Large or Too Small***

***Goes where the large machines can't go***

**A VERY IMPORTANT PATENTED FEATURE OF THIS MACHINE,** is that it can be operated on uneven ground, excavations around stumps, slopes or hillsides. **The cutter-head line of travel is not influenced by wheels rolling along over these uneven ground areas.**



**The tubular frame slides easily through sleeve-guides on a universal joint supported by a heavy stake, which is driven into the ground to any required stump removal depths. The cutter-head functions from side to side or forward or backward on the horizontal plane rather than unevenly.**

Patented

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**Patronize the Advertisers . . and Mention TREES**

# Burls and Other Unusual Woods

Wood worked by the hands of skilled craftsmen puts a wealth of quiet beauty into our daily lives. The warm glow of natural wood in different shades and forms invites the touch and a home without it seems drab and artificial. Most carpenters and amateur handy men are happy to work with straight boards with straight grain sawed from perfect logs. In contrast, the finest panelling, cabinetwork and objects in wood are made from parts of the tree which are ordinarily discarded. The crooked grain in stumps, and logs with knots or crotches, yields fanciful patterns when turned on a lathe or cut into veneer. So does the twisted grain in trees crippled by old injuries and in the tumorous or abnormal growths called burls.

The appreciation of woods with irregular grain is not new. Very fine pieces of furniture decorated with veneer cut from rare and precious burls have been found in ancient Egyptian tombs. One of the prize exhibits in the Metropolitan Museum of Art in New York is a bed taken from the tomb of the great-grandparents of King Tut's wife which is panelled with veneer of laburnum and acacia. It is not known how they sawed these thin layers or how they prepared glue that still holds after 3500 years.

Sometimes a burl is defined as an enlarged bump growing on a tree trunk and sometimes as almost any unusual woody growth. They are found occasionally on a wide variety of trees. Certain large galls or burls on oaks follow a chronic fungus infection. On other trees they seem to result from injuries, burns or continued irritation. In most cases the causes are not understood.

A smoker becomes attached to his brier pipe. He fondles it, guards it and rubs it on his nose to bring out the grain in the wood. Ordinarily the bowls of these pipes are made from brierwood — the gnarled roots of the tree heath, a dwarf tree that grows in France, Italy and Algeria. During World War II, when imports of briewood were cut off, American pipe manufacturers turned to root burls from such native members of the heath family as the mountain laurel and rhododendron of the southern Appalachians and the manzanita of California. Since then burl blocks by the millions, each large enough for one pipe bowl, have been cut from these woods.

Many kinds of trees produce the bumpy swellings called burls but those of the redwood may be six or eight feet thick and weigh thousands of pounds. Their heavy hard dark wood is figured with a fantastic grain. Like the potato with its eyes, a burl contains buds. A small one from the redwood placed in a dish of water will send up a ferny sprout. Hundreds of tons of burls from redwood, myrtlewood, madrone, and western maple are exported annually from Oregon to France and Italy. Strangely enough, much of the fine furniture made from these burls is returned to the United States.

Black walnut and black cherry burls are highly prized both because of the rich colors of their woods and because of their weirdly distorted grain. This is produced by innumerable buds that failed to develop, giving a bird's-eye effect. Rare sugar maple logs—perhaps only one in a hundred or a thousand—shows the exceptional curly bird's-eye pattern in the grain. It is not strictly a burl but good examples are extremely valuable and at one time was preferred above all other woods for fancy gun stocks.

Tastes in woods change like fashions in hats. Pine boards full of knots and cypress boards full of holes, once worthless, now bring high prices for panelling in dens and rumpus rooms.

*(Nature Bulletin No. 629)*

**Planning a Change? Send Your New Address to TREES**


**SAVE TIME – SAVE LABOR**

With our KWH knapsack mist blowers and dusters.
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KWH-75 Mistblower, equipped with 3 h. p. engine, gives complete mist penetration to 50 feet.

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**SEYMOUR SMITH**
PRUNERS and LOPPING SHEARS

Light weight, heavy duty pruners designed and manufactured to the highest professional standards. Clean, fast healing cuts, complete reliability and long trouble-free service life.

**SNAP-CUT**
**No. 1149**
**$7.95**

New, light weight, heavy duty anvil type lopping shears. Alloy metal handles. 100% guaranteed. Cuts limbs up to 1¼" diameter.

**SNAP-CUT**
**No. 119**
**$3.25**

The original anvil type pruner. A terrific tool. Cuts up to ¾" branches. All parts replaceable.

**"ALL PURPOSE" TREE PRUNER (NO. 3)**

An easy pull cuts 1" branches, spring opens blade for next cut. Lever action. Tempered cutlery steel blade. Heat treated steel head riveted to pole.

6 foot .....$5.25
8 foot .....$5.95
10 foot .....$6.50
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**TIFFANY LOPPING SHEARS**
**30"—$8.75**
**25"—$8.39**

Double cut "drawn in" cutting action. All forged, improved bolt and nut joint. Through tang handles.

**NEW, FINEST EVER PRUNING SAWS**

**No. 1922**
**22" blade—$6.25**

Fastest, easiest cutting saws for orchard use. Swedish steel blades. Complete line of 6 models covering all requirements up to chain saw work.

Quality Tools
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Since 1850

See your dealer— or write for free, descriptive literature.

**SEYMOUR, SMITH & SON, INC.**
Oakville, Connecticut, U. S. A.

# Hurricane

by MR. FELTON

*(Continued from Page 9)*

ers posing a real immediate threat to continuous operation were spotted and taken care of at once. The cost of removing hangers after restoration probably raised our figure from $14,000 to $17,000.

The question naturally arises, as to the reason for such a difference in correcting tree damage. First, I believe that in system of The Narragansett Electric Company Donna was much less severe and more localized as regards tree damage than Carol in 1954. In 1960, the areas near or adjacent to Narragansett Bay seemed to bear the brunt of the storm. Of course, other areas were hit but not as severely as in the storm of 1954. Another angle of importance is the frequency of these severe storms, each one tending to remove so many weak sisters such that if they become frequent enough only the strong will be left.

***Emergency line work. Outside utility crew running wire.*** **Photo courtesy Boston Edison Company.**

Of some significance is probably the fact that we had experienced a long dry spell so that much of the precipitation accompanying the storm was absorbed by the earth and did not contribtue to any appreciable decrease in holding power of root structures.

Other factors contributing to a small amount of tree damage are associated with the policy of the Company to remove dead wood and leaders with overhang of the line when the leader shows evidence of decay below the overhang. Such costs are reflected in an increase in normal maintenance costs but, of course, do not show up in storm damage.

By 1960, we had been equipped with mechanized equipment for seven years. We had completed at least two cycles of normal maintenance within that period, and had obtained better clearance, removed hazardous leaders and dead wood not readily accessible with old antiquated equipment. Coupled with improvements in design of overhead lines particularly in converting old lines to higher voltages, at which time we make every effort to obtain better clearance, it seems reasonable to assume that tree damage to overhead lines can be expected to diminish. The efforts made by our municipal tree wardens in the past several years in removing the elmes which have become infected with Dutch Elm disease also is a contributing factor in reduced tree damage.

I believe all utilities are giving a great deal of attention to the problem of tree interference in their design of overhead lines, with increased spacings, the use of insulated tree wire, and the use of space type cable.

Some of these methods to reduce tree interference may be discussed here today. However, for a few years at least, the conflict between overhead wires and trees will necessitate line clearing operations so that continuity of service to the utility customers can be reasonably assured.

We in Rhode Island are fortunate in being able to work very closely with management of The Narragansett Electric System in developing methods that provide good quality work both from a line clearing standpoint and the aboriculture standpoint. Over a period of years a well co-ordinated program with a high degree of cooperation between the arborist and the general public has been developed. It has meant a lot of doorbell ringing and tours with various tree wardens, but the results we have attained have certainly been progressive. Until the day when modern planning will bring a more compatible existence of custom trees and overhead line installations, it is a continual challenge to us, as arborists, to produce a quality of work that will assist the Narragansett Electric System to provide the continuity of service to their thousands of customers under normal conditions, and aid the restoration activities in times of emergency.

LICKITY LOG SPLITTER

Smooth 18 ton hydraulic power splits big profits for you from the toughest woods, including American Elm. 7 HP trailer unit squats under own power to receive large logs without "dead" lift. Has 2 speeds, auto-shift and auto-stroke. 26" ram travel splits up to 34" lengths, any dia.—or, with extended frame and adjustable wedge, splits up to 52" lengths, any dia. Write for details.

THE WACO AIRCRAFT CO., Dept. A, Troy, Ohio

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### *AND WIN A YEAR'S SUBSCRIPTION TO TREES*

One-year subscriptions will be awarded to 25 persons sending in the most novel and practical suggestions relating to improvement of TREES Magazine. 5 to 50 words will do it. Letters must be postmarked no later than October 31, 1961. Mail to:

**TREES MAGAZINE**
**25th YEAR CONTEST**
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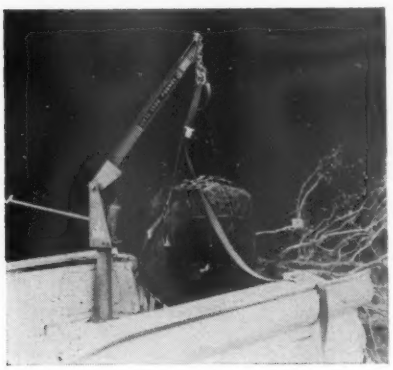
**WINNERS WILL BE ANNOUNCED IN THE ANNIVERSARY ISSUE (NOV.-DEC. 1961)**

**Patronize the Advertisers . . and Mention TREES**

# New Today—Used By YOU Tomorrow!

The new large feed table on the Asplundh Chipper, shown above, is specially designed for easy feeding from the sides and allows smooth passage of bulky branches. As optional equipment a blower attachment is also available which eliminates the chute stopage of fine brush and foliage, expedites the dispersion and discharge, and is easily installed on any chipper. For further information write to the Asplundh Chipper Company, Chalfont, Pa.



This one-man hydraulic portable tree mover is made up of a crane and an adjustable sling. The crane is available in 1,500 and 2,500 pound capacities. The sling is made of nylon belting and has three adjustable buckles, capacity 2,000 pounds. Design of the sling is such that it can be placed around a balled tree without having to roll the tree. The belting is guaranteed not to cut into the ball.

For further information write to: Ideal Crane Co., P. O. Box 516, Dept. TM, Wichita Falls, Texas.

* * * *

Erase is a unique new product recently introduced by O. M. Scott & Sons, New Canaan, Conn. It is a dry granular substance which wipes out all vegetation (crabgrass, weeds, etc.). Its primary use is for preparing new lawns although it is also useful for controlling weeds in paths and drives. Erase kills only via the foliage, thus there is no danger to tree or shrub roots which might extend under the path or drive.

## New Sprayer to Debut

Herbert P. Culp, president of the Friend Manufacturing Corp., Gasport, N. Y., recently announced that his firm plans to introduce a new sprayer at fall and winter equipment shows. The sprayer will incorporate novel drive and power features.

The new sales manager at Friend Mfg. Corp. is Roland N. Nerber, formerly with the Cocker Saw Co., Lockport, N. Y.


## BUSINESS FOR SALE

**Tree business for sale in northern Indiana. Sacrifice is made so owner can leave state. Very reliable customer list. Enough repeat work to stabilize business slumps. Very little competition. Daily radio advertising for three years. Ground work laid for future expansion. Business built around firm name rather than owners. 2 miles from city.**
**Included in sale: residence of 5 rooms, bath, office; 2-car garage; 10 acres of land, over 1,000 shade trees (many new grafted varieties); 20 x 30 storage and work shop; 70 x 30 truck storage; dug fish pond; small orchard; 6 trucks; 1 water cooled Hardie sprayer; 1 weed sprayer; 5 up-to-date power saws; tree moving equipment; small tools and material inventory items too numerous to mention.**
**The right man can have this for just $36,000.00. Contact:**
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**Phone JA 4-0370 Elkhart, Ind.**

## FOR SALE

**One 1956 12" Asplundh Trailer Mounted Chipper, only silghtly used with two extra sets of blades. $1000.00.**
**OSCAR F. WARNER, LANDSCAPE FORESTER, Inc.**
**24 East Aurora Street**
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## FOR SALE

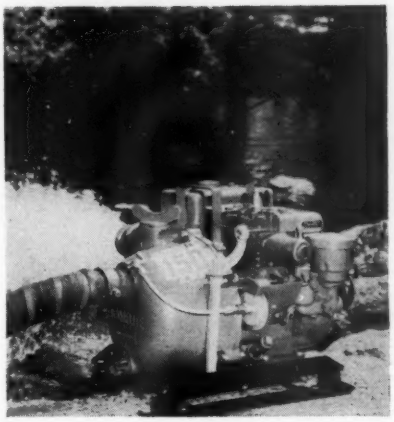
**One used John Bean Roto Mist Sprayer.**
**Phone Dakota 1523 or write**
**E. L. ISERMAN**
**R.R. 3, Freeport, Ill.**

## WANTED

**Wanted, used chipper with box and truck, used. Send description, price and picture if available, to:**
**UNITED TREE SERVICE**
**5609 Olson Memorial Highway**
**Minneapolis 16, Minnesota**

## Wanted

**Wanted, used model No. 10 Vermeer Pow-R-Stump Cutter**
**DAYTON TREE CO.**
**1301 Hempstead Road Dayton 29, Ohio**

Automation has come to the portable pumping field with Homelite's new automatic idle control accessory. This unique attachment thinks for itself: automatically idling the pump engine when water drops below the suction line strainer and bringing the engine up to full speed when water level rises.

According to Homelite, Port Chester, New York, the use of this new idle control accessory can cut a contractor's pumping costs to a bare minimum. Maintenance costs will be reduced for there's less wear and tear on engine and pump parts. Fuel costs, obviously, will be lowered. Simple design, there are only three main parts: pressure-sensing tube, activating diaphragm and throttle rod. Pump is Homelite 2", 9000 g.p.m., Model 44S2 driven by Briggs & Stratton 4-cycle engine.


## Situation Wanted

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# Authors and Books

**The books reviewed on this page may be ordered from TREES Magazine, 7621 Lewis Road, Olmsted Falls 38, Ohio.**

LESTER H. FAULKINGHAM

*Author of*
"Experiences With Hurricane Donna"

Page 6

Mr. Faulkingham has been in the employ of the New England Gas and Electric Association since his graduation from the University of New Hampshire in 1939. He has a B.S. degree in electrical engineering.

Mr. Faulkingham joined the New Bedford Gas and Edison Light Co. in May 1958 as Management Assistant-Electric, and in December 1960 assumed his present position as Superintendent of Electrical Operations. He is also chairman of the Southeastern Massachusetts Subsection, American Institute Electrical Engineers.

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HERBERT J. FELTON

*Author of*
"Experiences With Hurricane Donna"

Page 7

Mr. Felton majored in horticulture and minored in botany at the University of Rhode Island. Following his graduation he began practical training in arboriculture with his father's firm, John J. Felton, Inc., Warwick, Rhode Island. This association continued, with the exception of six years in the service, until Mr. Felton's father died in February 1959.

Mr. Felton is president and manager of John J. Felton, Inc., and is a member of the Rhode Island Arborists Association and the National Shade Tree Conference.

GEORGE E. WIGNOT

*Author of*
"Experiences With Hurricane Donna"

Page 7

Mr. Wignot is a graduate of the Pennsylvania State University Forestry School and is a certified arborist in the Commonwealth of Massachusetts.

He worked as a lineman and distribution dispatcher prior to attaining his present post as supervisor in the Transmission and Distribution Department of the Boston Edison Co.

Mr. Wignot's article, as well as those by Mr. Felton and Mr. Faulkingham, were referred to us by Gordon King, associate professor at the University of Massachusetts and a member of the advisory board of TREES magazine.

WALLACE A. MITCHELTREE

*Author of*
"Soil Management"

Page 10

Wallace A. Mitcheltree is an associate extension specialist in soils at the College of Agriculture, Rutgers University. Prior to joining the Rutgers staff he was assistant professor of agronomy at the University of Delaware.

Mr. Mitcheltree received a B.S. Degree from Thiel College, Greenville, Pa., and a M.S. Degree from Pennsylvania State College. He is a member of the American Society of Agronomy and the Soil Conservation Society of America.

The paper printed herein was presented at the National Arborists Association meeting January 30, 1961.

# For Your Calendar

Plant Propagators Society, Western Chapter, Asilomar conference grounds, Pacific Grove, Calif., October 25-26-27.

16th Horticultural Congress, American Horticultural Society, Hotel Northhampton and Wiggins Tavern, Northhampton, Mass., October 25-26-27-28.

Ohio Chapter, International Shade Tree Conference, Neil House, Columbus, Ohio, January 22, 23, 24, 25, 1962.

National Arborist Association, Washington, D. C., January 28, 29, 30, 31.

CORK AND THE CORK TREE by Giles B. Cooke. Pergamon Press, Lt., Headington Hill Hall, Oxford, England. 121 pgs., illus., $7.50.

The author's intention in writing this book was to provide a single source for general information about cork. Included are chapters about the tree's history, where cork grows, how it is harvested, processed and manufactured, and what the principal cork products are. Statistics on cork production and trade data are also presented.

The attractive shade tree qualities of the cork oak are described and several pictures show specimens in various cities of the United States. Areas in which the cork oak may be expected to grow are pointed out and directions for planting and growing the tree are given.

Dr. Cooke is a consulting chemist, formerly engaged for 30 years in research and development on cork and cork products. A total of twenty U.S. Letters Patent have been granted him for his developments with cork.

THE LIGHTNING BOOK by Peter E. Viemeister. Doubleday & Company, Inc., 575 Madison Ave., New York 22, N. Y. 316 pgs., illus., $4.50.

This book presents the facts about lightning: why it happens, what it does, and what can be done about it. Many of the chapters include practical advice on protection from lightning—for the home owner, the boat owner, the golfer, the farmer, the swimmer, and others.

Since trees are favorite lightning targets there are several pictures showing lightning damage to trees, and an entire chapter (11) devoted to trees and lightning.

GARDENING THE EASY WAY by Edwin F. Steffek. Holt, Rinehart and Winston, Inc., 383 Madison Ave., New York 17, N. Y., 198 pgs., illus., $3.95.

This book is a complete guide to gardening for homeowners. The contents take in every phase of gardening: requirements for every garden job and the basic tools; information on various types of soils and how to improve them; when and how to plant new lawns; how to buy plant material; complete tables of annuals, biennials; cultivation of roses; fertilizers; construction and design of walls, walks, fences; plus the fundamentals of pruning and propagation.

Throughout the book practical line drawings and diagrams illustrate the methods described by the author. Mr. Steffek is the horticultural editor of Popular Gardening and has written several other successful books.

**(Additional Book Reviews on Page 17)**

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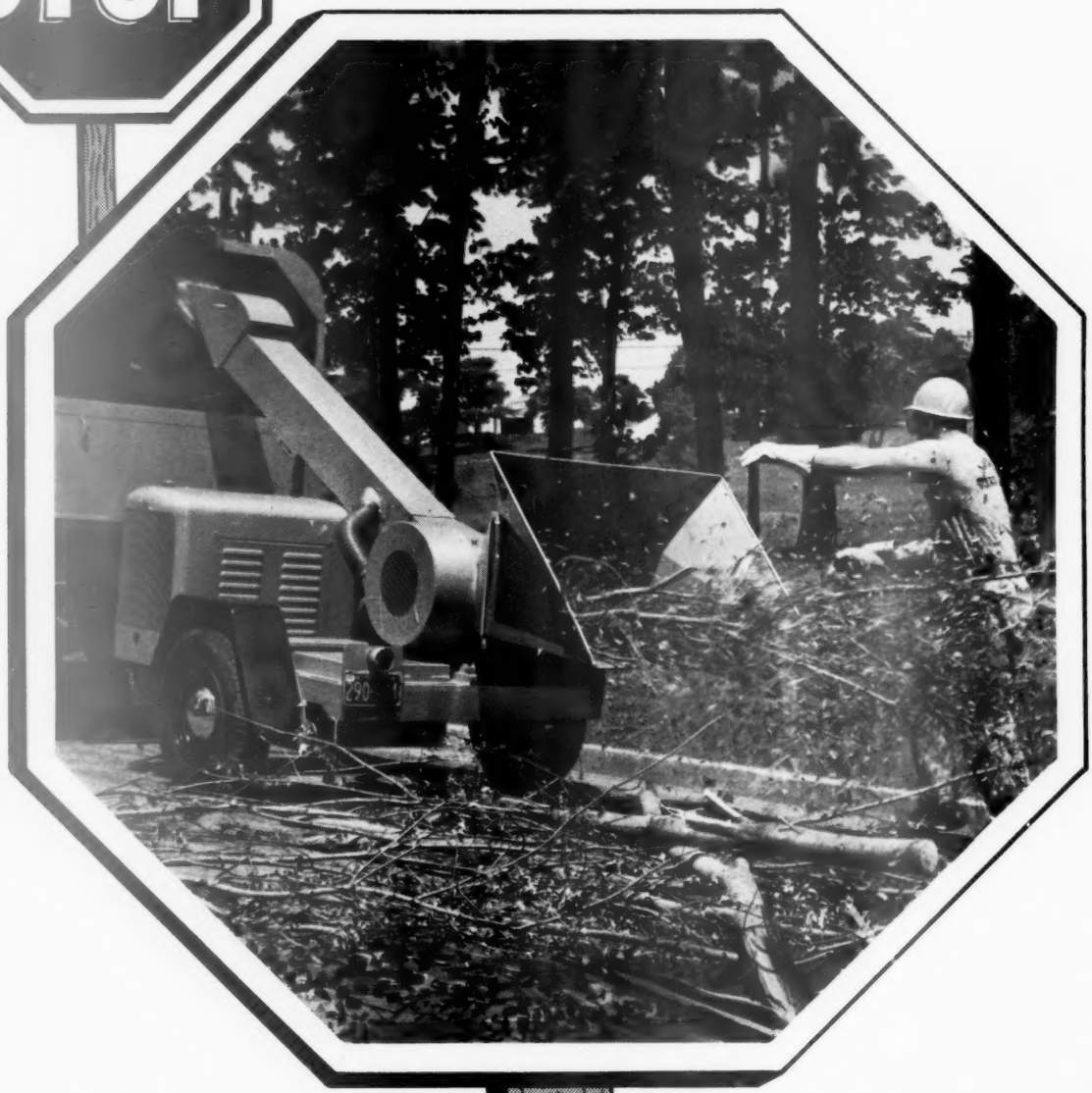

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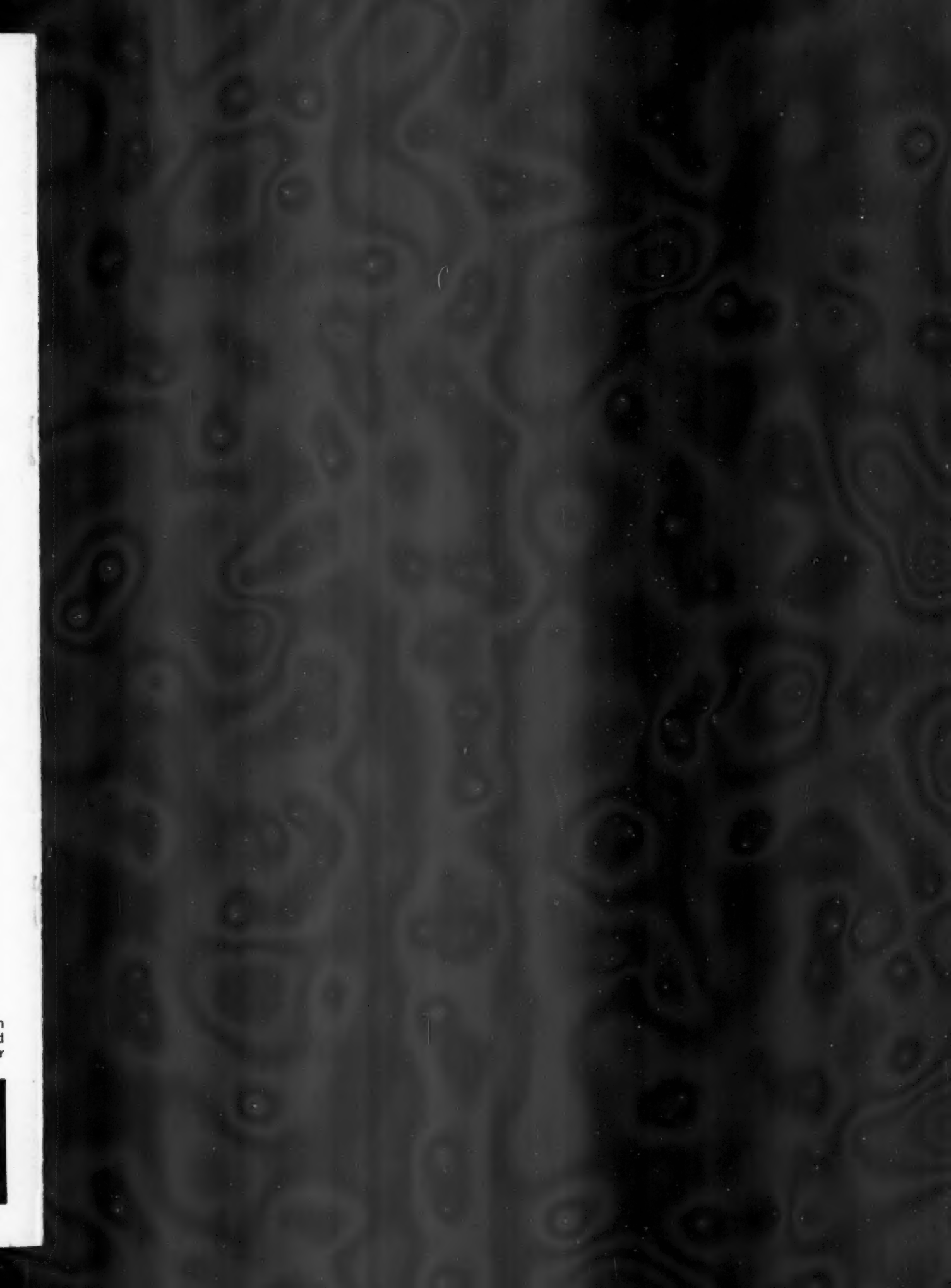
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